

CLAIMS

I claim:

[C01] 1. A method for using a downhole vent-dump valve having a closed position and a venting position positioned below the standing valve assembly but above the stinger assembly of a reciprocating pump placed within the production tubing, an associated means for driving the pump, a wellhead and control valves comprising:

- a) preparing a chemical to be spotted in the production tubing;
- b) preparing makeup fluid;
- c) attaching said chemical to be spotted to the wellhead control valve;
- d) attaching said makeup fluid to the wellhead control valve;
- e) ceasing pumping operations;
- f) opening the control valve leading to said chemical to be spotted;
- g) drawing up on the pump drive means thereby opening the vent-dump valve and placing the vent-dump valve in the venting position thereby allowing said chemical to be spotted to be drawn into the well;
- h) closing the control valve leading to said chemical to be spotted as said chemical to be spotted is exhausted and opening the control valve leading to said makeup fluid;
- i) lowering the pump drive means thereby placing the vent-dump valve in the closed position as the supply of said makeup fluid is exhausted;
- j) closing the control valve leading to said makeup fluid; and,
- k) restoring the well to normal operating conditions.

[C02] 2. The method of claim 1 wherein step h becomes:

- h1) closing the control valve leading to said chemical to be spotted when the required quantity of chemical to be spotted has been drawn into the well and opening the control valve leading to said makeup fluid;

and wherein step i becomes:

i1) lowering the pump drive means thereby placing the vent-dump valve in the closed position when the required quantity of makeup has been drawn into the well;

[C03] 3. The method of claim 1 wherein steps a, c, f and g are omitted and wherein wherein step h becomes:

h1) drawing up on the pump drive means thereby opening the vent-dump valve and placing the vent-dump valve in the venting position thereby allowing said make-up fluid to be drawn into the well thereby clearing flower sand from about the stinger assembly;

[C04] 4. The method of claim 1 wherein air is used a makeup fluid, wherein steps a, c, f and g are omitted and wherein steps h through k become:

h1) drawing up on the pump drive means thereby opening the vent-dump valve and placing the vent-dump valve in a venting position thereby allowing air to be drawn into the production and allowing the produced fluid to flow back into the annulus thereby clearing flower sand from about the stinger assembly;

i1) waiting a predetermined time period to allow the hydrostatic head to dissipate in to the annulus;

j1) drawing harder on the pump drive means thereby freeing the pump from the hold-down; and,

k1) continuing service operations as needed.

[C05] 5. A method for spotting chemicals in production tubing using makeup fluid and a downhole vent-dump valve having a closed position and a venting position in a well having a pump and associated means for driving the pump, a wellhead and control valves comprising:

a) preparing the chemical to be spotted;

b) preparing the makeup fluid;

- c) attaching both the chemical to be spotted and the makeup fluid to the wellhead control valves;
- d) ceasing pumping operations;
- e) opening the control valve leading to the chemical;
- f) drawing up on the pump drive means thereby opening the vent-dump valve and placing the vent-dump valve in the venting position thereby allowing the chemical to be drawn into the well;
- g) closing the control valve leading to chemical as the supply chemical is exhausted and opening the control valve leading to the makeup fluid;
- h) lowering the pump drive means thereby placing the vent-dump valve in the closed position as the supply of makeup fluid is exhausted;
- i) closing the control valve leading to makeup fluid; and,
- k) restoring the well to normal operating conditions.

[C06] 6. The method of claim 5 wherein step g becomes:

- g1) closing the control valve leading to said chemical to be spotted when the required quantity of chemical to be spotted has been drawn into the well and opening the control valve leading to said makeup fluid;

and wherein step h becomes:

- h1) lowering the pump drive means thereby placing the vent-dump valve in the closed position when the required quantity of makeup has been drawn into the well;

[C07] 7. A method for clearing flower sand in production tubing using a downhole vent-dump valve having a closed position and a venting position in a well having a pump and associated means for driving the pump, produced fluid, an annulus, a wellhead and control valves comprising:

- a) ceasing pumping operations;

- b) drawing up on the pump drive means thereby opening the vent-dump valve and placing the vent-dump valve in the venting position thereby allowing produced fluid to flow back into the annulus;
- c) waiting a predetermined time period thereby washing flower sand back into the annulus;
- d) lowering the pump drive means thereby placing the vent-dump valve in the closed position; and,
- e) restoring the well to normal operating conditions.

[C08] 8. The method of claim 7 wherein air may be allowed into the production tubing and wherein the well further has a wellhead and control valves further comprising:

- a-1) opening a control valve after step a); and
- d-1) closing the control after step d)

[C09] 9. A method for completely dumping the hydrostatic head in production tubing having a hold-down in an oil well using a downhole vent-dump valve having a closed position and a venting position in a well having produced fluid, a pump and associated means for driving the pump, an annulus, a wellhead and control valves for service operations comprising:

- a) ceasing pumping operations;
- b) opening an associated control valve;
- c) drawing up on the pump drive means thereby opening the vent-dump valve and placing the vent-dump valve in a venting position thereby allowing air to be drawn into the production and allowing the produced fluid to flow back into the annulus;
- d) waiting a predetermined time period to allow the hydrostatic head to dissipate in to the annulus;
- f) drawing harder on the pump drive means thereby freeing the pump from the hold-down; and,
- g) continuing the service operations as needed.

[C10] 10. The method of claim 9 wherein the vent-dump further has a dump position and wherein step (c) becomes:

c-1) drawing up on the pump drive means thereby opening the vent-dump valve and placing the vent-dump valve in a venting position; and,

c-2) drawing harder on the pump drive means thereby placing the vent-dump valve to a dump position thereby allowing air to be drawn into the production tubing and allowing the produced fluid to flow back into the annulus.